

Application No. 10/584,694
Amendment Dated: July 15, 2010
Reply to Office Action Dated March 15, 2010

Remarks

Claims 1-26 are pending.

Claims 1-26 stand rejected.

Claims 1, 3-12, 20-22 and 26 have been amended.

Claim 27 has been added.

Claims 1-27 are submitted herein for review.

No new matter has been added.

The Examiner has objected to the specification. Applicant has amended the specification accordingly and hereby requests that the objections be withdrawn.

The Examiner has rejected the claims under 35 U.S.C. 112 as being indefinite. Applicant has amended the claims accordingly and hereby requests that the rejections be withdrawn. Regarding the Examiner's 112 rejections as indefinite of claims 8 and 22 Applicant responds that paragraph [0028] supports claim 8 and [0046] supports claim 22.

Turning now to the prior art, the Examiner has rejected claims 1-12, 21, 22 and 26 under 35 U.S.C. § 103(a) as being unpatentable over Mori et al. (U.S. Patent No. 6367595). Applicant respectfully disagrees and submits the following remarks in response.

The present arrangement as claimed in independent claim 1 is directed to a caliper for a disc-brake having two side walls at a distance from each other which delimit a space suitable to accommodate a portion of a brake disc. One of the side walls has means for attaching the caliper to a vehicle so that the caliper is integral in rotation and in translation and the side walls are

connected to each other by means of a connecting structure which straddles the disc space, in which each of said side walls delimits at least one seating capable of accommodating at least one pad and in which the caliper comprises thrust means capable of forcing the pads against the brake disc to clamp the pads. The thrust means are secured to the side walls in such a way that the side walls absorb the entire clamping force and the seatings are capable of securing the pads in such a way that the side walls also absorb the entire braking force applicable by the pads to the brake disc by friction, in which the connecting structure comprises one or more shells, arc-shaped or arranged along an arc, connected so as to be integral with both side walls along outer circumferential edges thereof. The slenderness of the one or more shells expressed as the ratio of thickness to circumferential extension of the one or more shells relative to an axis of rotation of the brake disc is less than $17/100$.

The present arrangement limits the overall dimension of the calliper for a given brake diameter and thereby provides a calliper which can house a greater disc for a given calliper size. The shell type connecting structure allows the weight and size of the calliper to be reduced for a given brake disc diameter. Consequently, a calliper is obtained which is sufficiently rigid and smaller in size radially, allowing larger diameter discs to be used.

The cited prior art, namely Mori discloses a disk brake having a one-piece caliper with an inner portion formed with a first cylinder. The inner portion is fastened to a stationary part of the vehicle. The caliper further includes an outer portion formed with a second cylinder and a bridge portion connecting the inner and outer portions together and having an annular inner surface defining a corner. The disk brake further includes pistons each received in one of the first and

second cylinders, a disk rotor fastened to a wheel of the vehicle and disposed between the pistons and friction pads disposed between the disk rotor and the pistons so as to be movable toward and away from the disk rotor. The caliper is formed with a recess having an arcuate cross-section with a predetermined radius of curvature in the inner surface of the outer portion along the corner to extend in a direction in which the pistons are moved so as not to protrude radially inwardly of the annular inner surface of the bridge portion.

Applicant submits that the cited prior art does not disclose a caliper whose connecting structure comprises a slender shell, expressed as a ratio of thickness to circumferential extension relative to the axis of rotation of the brake disc, being less than 17/100.

The cited prior art, namely, Mori, discloses that the two bridges portions must have a circumferential distance which is greater than the length of the brake pads in order for them to be mounted, fixed and removed, if necessary. Therefore, an increase of the circumferential extension of the connecting structure, which is a pre-condition for obtaining the slender shell as required by the present claim 1, would invade the space for mounting the brake pads in the Mori reference. As such, those skilled in the art are clearly taught away from the solution of independent claim 1 which is incompatible with the basic structural requirements of the brake in Mori.

Separately, Applicant has added new claim 27. Support for new claim 27 can be found in Figures 1-6. New claim 27 addresses the same technical problem of limiting the overall dimension of the caliper for a given brake disc diameter. In the caliper in the Mori reference, a circumferential overlap of the connecting shell and the pad seatings would invade the space for

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mounting the brake pads. Therefore, the Mori reference teaches away from the solution as claimed in claim 27, which is incompatible with the basic structural requirements of the prior art document.

As such, the cited prior art does not teach or suggest all of the elements of independent claims 1, 6, 21, 26 and 27. For example, there is no teaching or suggestion in any one of the prior art references, either alone or in combination, that discloses a caliper *in which the slenderness of said one or more shells expressed as the ratio of thickness to circumferential extension of said one or more shells relative to an axis of rotation of the brake disc is less than 17/100.*

For at least this reasons, Applicant requests that the rejection of independent claim 1 be withdrawn. As claims 2-5, 7-20 and 22-25 depend from claim 1, these claims should be allowed for at least the same reason.

In view of the foregoing, Applicant respectfully submits that pending claims 1-27 are in condition for allowance, the earliest possible notice of which is earnestly solicited. If the Examiner feels that an interview would facilitate the prosecution of this Application he is invited to contact the undersigned at the number listed below.

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Respectfully submitted,
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